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November 25, 1998

Delmar Karlen, Esq.
Office of Regional Counsel
United States Environmental Protection Agency
Region II
290 Broadway, 19th Floor
New York, NY 10007-1866

Re: Passaic River: Index No. II - CERCLA-0117

Dear Mr. Karlen:

Chemical Land Holdings, Inc. (CLH), on behalf of Occidental Chemical Corporation (OCC), recently received a letter dated November 9, 1998 (Final Direction Letter) from Sharon Jaffess, the Environmental Protection Agency's (EPA's) Remedial Project Manager for the Passaic River Study Area (Study Area). In that letter, Ms. Jaffess provided the EPA's final direction regarding the Ecological Sampling Plan (ESP) portion of the Remedial Investigation/Feasibility Study (RI/FS) for the Study Area, submitted in accordance with Section VII of the above-captioned Administrative Order on Consent (AOC) and its appended Statement of Work (SOW). The purpose of this letter is to assert CLH's objections to EPA's final direction to include three additional sampling stations.

Attached to Ms. Jaffess' letter are several untitled pages of "some background information" provided by EPA's technical staff and natural resource Trustees' (Trustees') technical staff. Even if Ms. Jaffess had not explained that the attachment was written by Trustees' technical staff, we would have quickly concluded that it was not authored by Ms. Jaffess, who has been unfailingly courteous and mindful of CLH's hard work and cooperative attitude. The attachment, on the other hand, deliberately skews the terms of the AOC to achieve what the Trustees' technical staff wants, not what EPA and CLH agreed would be implemented.

As you are aware, Region 2 has identified and issued notice letters to a total of thirteen PRPs having potential liability for releases to the Study Area of hazardous substances that include heavy metals, PCBs, PAHs and other chemicals, including dioxins. To date, CLH (on behalf of OCC) is the only PRP that has cooperated in any way with respect to the Study Area. Subject to the outcome of the issues raised in this letter, and EPA's final decisions following review of CLH's Comment/Response Report which will accompany its submission of the revised ESP on December 9, 1998, we remain

hopeful that CLH will be able to continue its cooperation with EPA in the conduct of the ESP. For that reason, these issues continue to have great significance to CLH.

A. General Statement of Objection

Specifically, as will be explained *infra*, the following are outside the scope of the AOC:

1) The directive that CLH include three additional sampling stations in addition to the previously negotiated twelve;

2) The directive that CLH investigate off-site releases from the 80/120 Lister Avenue site (Site) of dioxin into the Study Area under the AOC; and

3) The Trustees' edict that CLH, as part of that investigation, develop gradients for biological chemical concentrations of dioxin based upon an additional three sampling stations.

Clearly, these directives are designed to focus the ESP on dioxin, and on a single source thereof, notwithstanding EPA's repeated and public acknowledgments that the Study Area is a multiple contaminant, multiple potentially responsible party (PRP) site. EPA acknowledges such in the first Finding of Fact set out in the AOC.

B. Legal Objections to the Substance of the Comments

1. The three directives to which CLH objects are inconsistent with the AOC's stated goals.

CLH agreed to enter into the AOC because EPA agreed that the Study Area contains many chemicals contributed by many PRPs from many facilities. That this is a multi-chemical/multi-facility/multi-PRP study is clear, not only from the very first Finding of Fact in the AOC, but also from the initial language of the SOW. EPA officials in public statements acknowledge this. For example, Ms. Jeanne Fox, Regional Administrator, has stated previously that contaminants are present in the Study Area from sources other than the 80/120 Lister Avenue Site; and Mr. Richard Caspe, Director, Emergency and Remedial Response Division, has reaffirmed this in his remarks at the recent Seton Hall Law School Symposium concerning, among other things, the Study Area.

By focusing on only one chemical – dioxin – the Trustees seek to ignore or dismiss a fundamental inducement to CLH's having entered the AOC on OCC's behalf, that being the multi-chemical/multi-source approach. As you know, CLH would not have entered the AOC had it not been so written. Rather than CLH (as alleged by the

Trustees in their comments), it is the Trustees who seek to "obfuscate" by trying to focus only on dioxin and not on the many contaminants that are demonstrated to exist in the Study Area.

We also believe it is telling that the EPA's Final Direction Letter includes the requirement to move sampling stations *upstream* of combined sewer overflow (CSO) discharge points. The rationale (stated on page 13 of EPA's April 16, 1998 comments on the ESP) for such movement is to reduce the possible impact of CSO discharges on other samples collected. The attachment to the Final Direction Letter implies that it was either CLH's recommendation, or CLH agreed, to so relocate sampling stations to reduce the impact of CSO discharges; however, this is not the case. It has always been CLH's position that so relocating sampling points could undermine assessment of the risk to biota in the Study Area. This is a clear example of the guidance provided by the Trustees being so focused on only one source that they recommend relocating sampling stations so as to minimize the effects of possible contaminant sources on other samples collected.

2. The Trustees either misread or ignored the provisions of the SOW.

In their comments, the Trustees wrote[1]:

> The PRPs contend that there is a "Lack of data use objectives" for sampling the Passaic River adjacent to and downstream of the Diamond Alkali site. However, the use of the data generated from this sampling should be clear: the remedial investigation of the uncontrolled release of contaminants from the Diamond Alkali site to the Passaic River must include the resulting migration pathways and associated potential for ecological risk. [Page 1 of "background information"]
>
> The three required additional sampling locations will provide useful information regarding both impacts to and ecological risk within the Passaic River associated with the uncontrolled release of contaminants from the Diamond Alkali site . . . . The data generated by the additional sampling locations will be of use in completing the ecological risk assessment, as well as in proposing and evaluating remedies for the contamination

[1]The "Diamond Alkali site" to which the Trustees refer is, of course, the 80/120 Lister Avenue, Newark property. This property is not within the scope of the AOC.

release by the Diamond Alkali site. [Page 5 of "background information"]

Those comments purport to respond to a May 13, 1998 letter from Alex Pittignano, (Attachment A), in which CLH reiterated to EPA the goals of the SOW, articulated at SOW Sections A.1. and 2. In Section A.1. of the SOW, the stated goals are to determine the horizontal and vertical distribution and concentrations of PCDDs, PCDFs, PCBs, PAHs, pesticides, and metals from the sediments in the Study Area. The stated uses of that information are to determine concentration gradients in sediments. This section defines the data needs and subsequent data use for Passaic River sediments from the Study Area. They were established by EPA, not created by CLH as the Trustees imply. This required work has already been done, the investigative portion having been completed in 1995 with EPA oversight. The data generated in that work were provided to EPA and its reviewers. Such work included 78 sediment cores along transects spaced 1,200 feet apart, as required by SOW Section B.3.a.i.(1), along with ten additional sediment cores located by EPA, as required by SOW Section B.3.a.i.(3). Section A.1. does not identify a goal of the Work to be collection of biota, or performing biota toxicity tests, to determine a chemical concentration gradient.

Neither does Section A.2. of the SOW require the collection of biota, or performing biota toxicity tests, to determine a biological chemical concentration gradient within the Study Area from any specific source of contamination outside the Study Area.

3. The proposed additional three sampling stations will skew the results of the ESP and discourage the participation in Study Area response actions by other PRPs.

The proposed additional three sampling stations immediately downstream of the 80/120 Lister Avenue Site will skew the results of the ESP as explained in the attachments to Mr. Pittignano's May 13, 1998 letter to Ms. Jaffess, particularly with EPA's directive to place all other sampling stations in the Study Area upstream of CSO discharges. CLH will again make that explanation in OCC's forthcoming Comment/Response Report that will accompany the submission of the ESP on December 9, 1998. Finally, in addition to the fact that the proposed additional three sampling stations are contrary to the AOC, they are not cost effective, and their inclusion will impede participation by other PRPs in Study Area response actions by effectively negating the Agency's articulated view that the Study Area is a multiple contaminant/multiple PRP matter.

4. Consistent with the National Contingency Plan (NCP), the Trustees participated in the development of the AOC, including the SOW, and therefore cannot now unilaterally alter the scope and approach set out in those legally-binding documents.

As stated in paragraph B.1. above, the Trustees, through their "background comments", either ignore or seek to dismiss a fundamental inducement to CLH's having entered the AOC on behalf of OCC – that being the multi-chemical/multi-source approach. As you know, certain of the Trustees' representatives participated in the development of the AOC and the SOW, which participation is clearly contemplated by Section 300.430(b)(7) of the NCP, 40 CFR § 300.430(b)(7). The AOC and the SOW require that the scoping of the ESP be consistent with the goals of the AOC and the SOW. However, the NCP does not, of course, give the Trustees authority to unilaterally or otherwise enlarge the terms of a negotiated agreement to which they are not a party. The three additional sampling stations sought by the Trustees are inconsistent with the goals of the AOC and the SOW and inconsistent with the agreement of the parties.

Because of the grave importance of this matter, we have requested an opportunity to meet with you to discuss it further. As the final revised ESP is required to be submitted on December 9, 1998, we have suggested December 4th as a date to meet with you and Patricia Hicks to discuss these vitally important issues at your offices in New York. We await confirmation from you of the December 4th, 10:00 a.m. meeting time, and we thank you for taking our unexpected call last Friday morning, November 20, and rearranging your schedule to accommodate our request. As always, we appreciate your assistance and look forward to hearing from you.

Yours very truly,

Carol E. Dinkins /pkp

Carol E. Dinkins

cc: Patricia Hicks, Esq.
Ms. Sharon Jaffess
Mr. Mel Hauptmann
Mr. Alex Pittignano
Paul Herring, Esq.
Paul Bohannon, Esq.
John Dugdale, Esq.

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CHEMICAL LAND HOLDINGS, INC.

May 13, 1998

Chief, New Jersey Superfund Branch - 2
Emergency and Remedial Response Division
U.S. Environmental Protection Agency, Region II
290 Broadway, 19th Floor, Room W-20
New York, NY 10007-1866

Attention: Ms. Sharon Jaffess
Project Manager

Subject: EPA Comments on the Ecological Sampling Plan for Passaic River Study Area

Dear Ms. Jaffess:

Please find attached a summary of an analysis concerning the notion of adding three judgmental sampling stations to the Ecological Sampling Plan. The addition of the three judgmental sampling stations as described in EPA's comments on the ESP dated April 16, 1998 does not have a data use in either the HERA or the FS and therefore should not be incorporated into the ESP.

This is not an inconsequential matter. Adding three sampling stations to the already identified twelve would be a 25% increase to an already multi million dollar (our current estimate is $3 million) program. We strongly believe EPA should not add such additional expense for a stated interest that is contrary to the Administrative Order on Consent, that has no data use for preparation of the HERA or the FS, that would provide statistically insignificant data, and that goes against EPA's risk assessment guidance. Please consider the attached information during your upcoming discussions with BTAG on this matter.

In accordance with our telephone conversation today, I have e-mailed this letter and the attachment to you in order for you to receive it prior to your internal meetings on this matter. Please feel free to call me at (201)955-2541 if you have any questions relating to this information.

Sincerely,

Alex Pittignano

Alex Pittignano
Project Engineer
On behalf of Occidental Chemical Corporation
(as successor to Diamond Shamrock Chemicals Company)

DATA USE OBJECTIVES AND STATISTICAL SIGNIFICANCE OF THREE ADDITIONAL BIASED SAMPLING LOCATIONS PROPOSED FOR THE ECOLOGICAL SAMPLING PLAN

In EPA's comments to the Ecological Sampling Plan (ESP), EPA suggests that three additional biota and sediment sampling locations should be added to the ESP in order to "evaluate possible gradients of dioxin contamination in the Study Area". EPA provides specific locations for these sampling stations and indicates that they may be changed if there is no available mummichog habitat at these locations. As described below, there are no data use objectives in the HERA or the FS for the data which would be collected from these additional sampling stations. Additionally, focusing on one chemical is contrary to the Statement of Work, Appendix I of the Administrative Order on Consent[1], to which the EPA is a party, and inappropriate when considering the existing chemical data for sediments. Furthermore, there are at least three statistical reasons why these sampling stations do not need to be added to the ESP. First, existing dioxin (2,3,7,8-TCDD) sediment sampling data from the Remedial Investigation (RI) and earlier investigations demonstrate that there is no gradient in dioxin concentration in surface sediment within the Study Area. Second, the increase in statistical power derived from the addition of three judgmental sample stations is insignificant. Finally, the addition of three judgmental sampling locations is contrary to current EPA risk assessment guidance and inconsistent with the statistical design of the other twelve locations.

Lack of Data Use Objectives

The data which would be collected at the three additional sampling locations does not have a clear data use objective for completion of either the HERA or the FS. It is not feasible to use the additional data that the EPA proposes to collect to make small-scale comparisons for the biological endpoints being measured under the ESP for the following reasons.

- Historical sediment toxicity testing conducting within the Study Area by NOAA has consistently indicated high mortality rates for benthic invertebrates. Therefore, a gradient of sediment toxicity is not expected to exist in this reach.

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[1]Administrative Order on Consent, Index No. II-CERCLA-0117, 1994

- The distance between the proposed sampling locations ranges from 750 to 1,000 feet, which is smaller than the home range of organisms which would be sampled at these locations. Therefore, it would not be possible to draw conclusions regarding small-scale differences in bioaccumulation from sediment.

- The data use objective for bivalve sampling is to measure the chemicals available in the water column for biological uptake. Water column uptake by bivalves will not vary over the distances between the proposed sampling stations.

- Historically, 131 surface sediment samples were collected for chemical analyses in the Study Area. As previously described, statistical analysis of this data set indicates that there is no gradient in the Study Area for dioxin.

The Study Area is a Multiple Chemical Site

The sediments in the Study Area contain numerous hazardous substances, including but not limited to, cadmium, copper, lead, mercury, nickel, zinc, polyaromatic hydrocarbons ("PAHs"), bis(2-ethylhexyl) phthalate, polychlorinated biphenyls ("PCBs"), dichlorodiphenyl-trichloroethate ("DDT), diesel ("TEPH"), 2,3,7,8-Tetrachloro-dibenzo-p-dioxin ("2,3,7,8-TCDD"), 2,4-Dichlorophenoxy acetic acid ("2,4-D"), 2,4,5-Trichlorophenoxy acetic acid ("2,4,5-T") and 2,4,5-Trichlorophenol ("2,4,5-TCP").[2] The Statement of Work at page 3 states the goal of determining the horizontal and vertical distribution and concentrations of half a dozen categories or groups of chemicals. This information then is to be used to determine gradients, identify potential exposure and evaluate remedial alternatives. Therefore, placement of three sampling locations based on sediment concentrations of one chemical (dioxin), with the stated data use of a statistical analysis of one chemical (dioxin) is contrary to the Statement of Work and will bias the data set. Developing a biased data set will impede, not further the achievement of the goals of the AOC, as set forth in

[2] Administrative Order on Consent, Index No. II-CERCLA-0117, 1994

the SOW.

A Statistical Analysis Does Not Support Three Additional Sampling Locations

There are at least three statistical reasons why these sampling stations do not need to be added to the ESP.

Lack of Correlation Between Location and Concentration

An examination of the existing dioxin surface sediment sampling data from the RI and other investigations (total sample size of 131 samples) demonstrates that there is no "gradient" of dioxin concentration in surface sediment within the Study Area, *i.e.*, there is no relationship between dioxin concentration and sample location. This was determined using two methods. First, the Spearman correlation coefficient between concentration and river mile was calculated. The Spearman correlation coefficient is a nonparametric method for evaluating the relationship between two variables, and ranges from -1 (negative correlation) to 1 (positive correlation) with a value of zero indicating no correlation between the variables (Freund and Walpole, 1987). The Spearman correlation coefficient for dioxin surface sediment concentrations and river mile was 0.114 which is not statistically significantly different than zero at a 95% confidence level ($p=0.883$).

Second, the Durbin-Watson test for the existence of serial correlation was performed. Serial correlation occurs when there is a correlation between successive observations, *i.e.*, the concentration of a sample is dependent on the concentration at a sample collected earlier or located upgradient of the original sample. For the surface sediment data, the Durbin-Watson test was used to determine if there was a serial correlation between samples based on river mile location. For the RI data, sediment samples along the same transect (same river mile) were averaged. The samples were ordered from furthest upstream to furthest downstream. The procedure for applying the Durbin-Watson test is presented in *Methods for Evaluating the Attainment of Cleanup Standards Volume 2: Ground Water* (USEPA, 1992). This test is typically used to evaluate serial correlation

with respect to time rather than distance; however, the same method applies regardless of the source of correlation. The Durbin-Watson test indicated that there was no serial correlation present with respect to river mile at a 95% confidence level. In addition to the dioxin surface sediment data, the total coplanar PCB and mercury surface sediment data were also evaluated. The evaluation of these two chemicals also indicated no serial correlation at a 95% confidence level.

Lack of Increase in Statistical Power

Even if the samples were randomly located, the addition of three more sample locations would not increase the statistical power of the biota and sediment data sets. The original number of sampling stations (12) was selected using the statistical methods presented by the EPA (1989). Based on the coefficient of variation from the existing dioxin biota data for blue crab and mummichog, twelve sample stations were determined to be sufficient to ensure that the biota data set had a power of 90%, a confidence of 90%, and a minimum detectable relative difference of 30%. These requirements for power, confidence, and minimum detectable relative difference are those presented in EPA guidance for site investigation activities (EPA, 1989). Given a fixed confidence of 90% and minimum detectable relative difference of 30%, the increase in power due to the addition of three sampling stations is 4.5% for sediment, 5.2% for blue crab, and 2.0% for mummichog. In fact, the addition of three more randomly located sampling stations would merely increase the power for the blue crab data from 91% to 96% and for the mummichog data from 97% to 99%. This increase in power is insufficient to justify the additional sampling costs. Since the locations are not randomly selected, the increase in power cannot be determined. However, it is certainly less than if these locations are selected randomly.

Inappropriateness of Judgmental Sampling

Because the proposed additional three sampling stations have been determined based solely on EPA's judgement, they are not appropriate for use in risk assessment and are not consistent with the other twelve sampling stations because they are not randomly selected. The original twelve

sampling stations were randomly chosen within the available habitat areas in the Study Area using a stratified random sampling approach. EPA risk assessment guidance is clear that random sampling is required for use in risk assessments. In EPA (1989b), *Risk Assessment Guidance for Superfund*, states the following:

> "Although areas of concern are established purposively (e.g., with the intention of identifying contamination), the sampling locations within the areas of concern generally should not be sampled purposively if the data are to be used to provide defensible information for a risk assessment. ... Due to the bias associated with the samples, data from purposively identified sampling locations generally should not be averaged and the distribution of these data generally should not be modeled and used to estimate other relevant statistics."

In addition, EPA's (1990) *Guidance for Data Useability in Risk Assessment*, states that:

> "The RME or UCL cannot be calculated from the results of a judgmental design."

With regard to the comparability problems associated with combining the results of a random sampling program with those of a judgmental or purposive sampling programs, EPA (1990), *Guidance for Data Useability in Risk Assessment*, states the following:

> "Comparability issues have little impact on performance measures associated with sampling provided that the sample design is unbiased, and the sample design or analytical methods have not changed over time. If any of these factors change, the risk assessor may experience difficulties in combining data sets to estimate the reasonable maximum exposure (RME)."

The main difficulty with combining the results of a random and a judgmental sampling program is that the data from the judgmental sampling program will have a biased mean and variance. This systematic bias will in turn cause the overall mean and variance of the combined data to be biased as well (EPA, 1990).

Conclusions

Analysis of the existing surficial sediment chemistry data indicates that a dioxin gradient does not exist within the Study Area, and it is not and should not be expected that data which would be collected from the three proposed sampling locations would provide any useful information. Secondly, the addition of three judgmental sampling locations will not significantly increase the overall statistical power to the data collected under the ESP. Finally, it is not anticipated that either the HERA or the FS would have a data use objective for the data which would be collected from the three proposed sampling locations. Therefore, the three proposed sampling locations should not be incorporated into the ESP.